Psychological resilience and post-traumatic growth in disaster-exposed organisations: Overview of the Literature

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Abstract

As disasters become increasingly prevalent, and reported on, a wealth of literature on post-disaster mental health has been published. Most published evidence focuses on symptoms of mental health problems (such as post-traumatic stress disorder, depression and anxiety) and psychosocial factors increasing the risk of such symptoms. However, a recent shift in the literature has moved to exploring resilience and the absence of adverse lasting mental health effects following a disaster. This paper undertakes a qualitative review of the literature to explore factors affecting psychological resilience, as well as the potential positive impact of experiencing a disaster (post-traumatic growth) by examining the literature on employees in disaster-exposed organisations. We identify several protective factors: training, experience, and perceived (personal) competence; social support; and effective coping strategies. Post-traumatic growth frequently appeared to occur at both personal and professional levels for those rescue staff after a disaster, giving employees a greater appreciation of life and their relationships, enhancing their self-esteem and providing a sense of accomplishment and better understanding of their work. Implications, in terms of how to build a resilient workforce, are discussed.

Keywords: Disasters, mental health, post-traumatic growth, resilience

Introduction

Disasters are becoming more prevalent across the world, with a sustained rise in climate-related events such as floods and storms[1] as well as transnational terrorism[2], with more countries than ever experiencing a terrorist incident of some kind[3]. A wealth of literature has been published on the negative psychological impact of experiencing a disaster, suggesting that the risk of suffering from post-traumatic stress disorder (PTSD) is substantial[4], as well as other mental health problems such as depression and anxiety[5,6]. Research has also identified risk factors associated with post-disaster mental health problems, such as high levels of exposure to the trauma, lack of pre-disaster training, experiencing injury or death of a loved one, having one's personal and professional life affected by the disaster, previous trauma, and lack of social support[7-10].

The meaning of the term *resilience* can vary within the literature: a systematic review on how community resilience is defined suggested that the term is understood and applied differently by different researchers[11]. Most commonly, resilience tends to refer to positive adaptation despite adversity[12,13]. Due to the increasing prevalence of disasters worldwide, this capacity to adapt and cope with traumatic events is important in allowing individuals and societies to either 'bounce back' (to their pre-trauma state) or positively adapt to the new situation in a timely and efficient way after crisis[14].

Though most research has focused on the risks of adverse mental health effects, there has been a recent shift to exploring resilience as opposed to risk; Pietrantoni and Prati[15] discuss this recent focus on resilience as an example of the paradigm shift within the trauma literature from focusing on etiology of disease to focusing on the origins of health. Research has suggested that resilience after a disaster may be common: for example, Bonanno et al.[16] looked at the prevalence of resilience (which they defined as, simply, the absence of PTSD symptoms) in a sample of New York City residents during the six months following the 9/11 attacks. Resilience was found in 65.1% of the (n=2752) sample, and was less prevalent among those highly exposed, but the frequency of resilience did not fall below one third even among the exposure categories that generated the greatest proportion of probable PTSD (for example, those who were physically injured and those who were in the building at the time of attack had the highest levels of PTSD, but over a third of people in these categories were resilient).

While it is inevitable that some trauma-exposed people will develop mental health problems following a disaster, many people continue to function well and may even have positive emotional experiences[17]. Tedeschi and Calhoun[18] refer to these positive experiences as *post-traumatic growth*, and developed the Post-Traumatic Growth Inventory[18], which examines positive responses to trauma in five areas: appreciation of life, relationships with others, new possibilities in life, personal strength, and spiritual change.

The literature covers a wide scope of employees, from those specifically working in crisis-related occupations (such as relief workers and emergency services personnel) to healthcare workers working during

disease outbreaks and employees of occupations who would not expect to face trauma in their roles but who were caught up in major incidents by chance. The literature also covers a range of disasters, from terrorist attacks to pandemics to natural disasters such as hurricanes and tsunamis. Given that the two areas most commonly discussed within the concept of resilience are experiencing potentially traumatic situations without subsequent mental health disorder and adapting in a positive way to such experiences, this paper aims to qualitatively explore the literature on both, focusing particularly on research looking at employees in disaster-exposed organisations.

Factors associated with psychological resilience

Training, experience, and perceived competence

Many papers report that resilience may be associated with an employees' sense of competence or preparedness; specifically, those who feel they have had adequate training and preparation for crisis work appear to be more resilient and less at risk of suffering with mental health symptoms. For example, a study of social workers after the 9/11 terrorist attacks in New York[19] found that those with a higher sense of professional mastery were less distressed in general, experienced less secondary trauma, and the higher participants scored on a 'mastery' scale, the lower they tended to score on a measure of burnout.

Gabriel et al.[20] carried out a study with police after the 2004 Madrid bombings. Only two officers reported depressive symptoms and no other psychopathology was observed. The authors explain this unexpectedly low prevalence of mental health symptoms as being partly due to the fact that the majority of the police involved had extensive experience and training in dealing with terrorist attacks – 70% of them had previously participated in terrorist operations. Their suggestion that rates of psychopathology are lower in those who are more trained and prepared has been supported by research comparing trained rescue workers with volunteers, suggesting that those with training tend to experience fewer adverse mental health effects than inexperienced volunteers[21-23]. A study of various occupational groups after the 2004 South East Asia tsunami[24] also found that specific mission preparation and training was associated with lower stress reactions. Similar findings have been found in military personnel with those perceiving that their work in theatre was above their usual trade and experience reporting higher levels post-traumatic stress symptoms[25].

A study of healthcare workers who worked during the SARS crisis[26] found that perceived adequacy of training and experience were protective against mental health symptoms. Similarly, a study of family medicine tutors who worked during the SARS crisis[27] showed that previous training in handling infectious disease outbreaks was protective against poor mental health, and another study of healthcare workers involved in the SARS crisis[28] showed that those confident in their infection control knowledge and skills had lower stress levels and fewer negative psychological effects than those less confident.

Social support

Many papers suggest social support is a protective factor against mental health problems. For example, Chen et al.[29] found that for nurses working during the SARS crisis, greater family support was associated with lower levels of mental health symptoms. Tak et al.[30] found that fire-fighters working during the Hurricane Katrina crisis were less likely to report depressive symptoms if they were living with their families than not.

As well as family support, support from colleagues and managers also appears to be protective against adverse mental health effects. For example, Marjanovic et al.[31] found that high organisational support predicted less avoidance behaviour and lower state anger in nurses exposed to the SARS crisis. A study of police officers after a major flood in Australia[32] found that work culture support and supervisor support negatively correlated with psychological strain.

Social support has been shown to be protective in military samples in general[33] and the same holds true for civilians. Support from family, friends, and/or the workplace has frequently been associated with resilience. The low rates of psychopathology in police after the Madrid bombings, as described in the previously reported study by Gabriel et al.[20] may also have been associated with social support as well as with training: high levels of social support were reported. Better support has been associated with lower levels of distress in social workers following the terrorist attacks that occurred in the US on 9th September 2011, commonly referred to as 9/11 [19] In addition lower levels of work tension in various occupational groups exposed to Hurricane Andrew[34]; less symptom severity on measures of post-traumatic stress, anxiety, depression and burnout in recovery workers after the 2005 North Pakistan earthquake[35]; and lower levels of depression, psychological distress, and burnout, as well as higher levels of life satisfaction, in humanitarian aid workers[36].

Brackbill et al.[37] explored risk factors for post-traumatic stress symptoms in various employees and residents of New York City following the 9/11 attacks, and found that social support was inversely related to post-traumatic stress symptoms across groups, with the greatest effect being observed among rescue and recovery workers. In this study, 49.7% of those reporting no sources of social support had post-traumatic stress symptoms, compared to only 9.9% of those reporting four or five sources of social support. A similar study of federal employees after the 9/11 terrorist attacks[38] found that 56% of those with two or fewer confidants showed symptoms of depression compared to only 23% of those with three or more people they felt able to confide in. The same study found similar results for PTSD symptoms, with 42% of those with two or fewer confidants showing PTSD symptoms compared to only 17% of those with three or more confidants.

Effective coping strategies

Unsurprisingly, coping strategies appear to be important in terms of how resilient an individual is. A study of disaster workers[39] found that an 'approach acceptance' attitude towards death (as opposed to fear or avoidance) was associated with post-traumatic growth at the six-month follow-up stage. Avoiding thinking about death and fear of death were associated with negative psychological changes whereas acceptance, or allowing oneself to think about traumatic events rather than avoiding them appeared associated with resilience. This has been supported by research suggesting that avoidance of traumatic thoughts is associated with greater psychopathology[40,41].

A coping style referred to as hardiness (encompassing a sense of meaning and purpose, belief that one can control their own destiny and belief that change is the normative mode of life as opposed to stability) has also been associated with resilience: a study of social workers offering help to disaster-exposed individuals[42] found that this type of coping style was associated with fewer psychological symptoms.

Post-traumatic growth

Many papers have reported on the potential positive impact of experiencing a disaster. For example, for those involved in the recovery and relief efforts during and after a disaster, the experience has frequently been reported as fulfilling, worthwhile and meaningful, and can cause workers to feel they have benefited both personally and professionally[24].

At a personal level, disaster response work can often be viewed as rewarding, in terms of allowing those involved to feel that they have made a contribution or have accomplished something good, which can lead to improved confidence, self-esteem, and compassion[43-46]; feeling more committed to living a full life[47]; valuing life more[44,48]; feeling more connected to the community[49] and increased sense of purpose[50]. A study of police officers who had been involved in the retrieval of bodies after an oil platform disaster[51] found that the majority of officers suffered no substantial adverse reactions, at three-month or three-year follow-up. Those involved tended to report being glad to have been able to help as part of the recovery team, and that the experience had improved their self-esteem and coping.

Taking part in relief work can also strengthen professional competency. A study by Soliman et al.[45] found that 79.7% of outreach workers following a major flood felt the experience had had a positive effect on their professional growth, while Bakhshi et al.[43] found that embassy workers involved in the Fukushima disaster reported the experience had had a positive impact on their career. A study of aid workers in a culture of violence in Guatemala[52] found that levels of perceived personal accomplishment during relief work were inversely related to PTSD, while Chang et al.[53] found that feelings of personal efficacy and satisfaction with their efforts was associated with higher levels of resilience and lower levels of secondary trauma and burnout in Chinese earthquake rescuers. Relief workers appear to consider their work provides them with a clearer

concept of disaster care, better knowledge of the needs of survivors, reinforces commitment to their role and enhances their ability to recognise factors which can hinder rescue operations[44].

Bhushan et al.[54] explored the effects of proactive coping, in terms of proactive behaviours such as autonomous goal setting and turning obstacles into positive experiences in non-governmental organization (NGO) relief volunteers following the 2004 Indian earthquake and tsunami. Proactive coping was positively correlated with total scores, and with several specific aspects, of post-traumatic growth such as relating to others, new possibilities, personal strength, and spiritual change. Other proactive behaviours such as volunteering were associated with more positive feelings in psychologists after the 9/11 attacks[55].

Discussion

This paper aimed to qualitatively explore resilience and post-traumatic growth following disaster exposure in occupational groups. It reports on various occupations after experiencing incidents from terrorist attacks to natural disasters to disease outbreaks. We identified three main factors associated with psychological resilience in disaster-exposed employees which may have wide relevance including for military personnel. Firstly, *training, experience and perceived competence* appeared to be protective: those who felt they could perform their jobs effectively and competently, who were satisfied with their disaster-related training and particularly those who had training specific to disasters appear to be more resilient than inexperienced volunteers or inadequately prepared staff. Secondly, *social support* appeared important in enhancing resilience: support from both family and loved ones and from colleagues and managers at work may protect employees from suffering adverse mental health effects. Thirdly, *effective coping styles* may affect mental health outcomes in disaster-exposed employees. The literature suggested that proactive and confrontational coping styles – that is, taking charge of the situation, engaging in proactive behaviours, acceptance of the situation and allowing oneself to face traumatic thoughts – are more likely to enhance resilience than avoidant coping styles.

The literature suggests that for those involved in disaster relief/recovery work, the experience can often be rewarding and meaningful and can lead to post-traumatic growth, both personally and professionally. It was common for participants to feel that they had learned to value their life more, to gain self-esteem, and to gain a better understanding and appreciation of disaster relief work in general. Ideally organisations should foster resilient workforces who would experience more of these positive outcomes rather than the potential negative outcomes such as post-traumatic stress and other mental health problems. Further research should be carried out on factors associated with post-traumatic growth symptoms in order to identify the best ways of achieving this.

The findings of this paper have important implications for organisations who would expect to be exposed to traumatic situations as part of their roles – for example, disaster relief workers, military personnel, healthcare

workers and the emergency services – and these results may be generalised to employees in any organisation. For example, preparedness and a sense of competence – gained from specific disaster-related training – appears to be protective, so organisations should consider incorporating some disaster preparedness into their employee training programmes. For employees in trauma-related occupations, it should be ensured that training is specific (e.g. training on terrorist operations for emergency responders; training on infection control for healthcare workers) and that employees feel satisfied this training is adequate and that they would know what to do in such a situation. However, employees in any organisation would also benefit from better disaster preparedness (e.g. more realistic mandatory fire alarm tests) even if they feel it is unlikely to happen to them.

Organisations can ensure that they are offering adequate psychosocial support to their employees: managers should be supportive and all employees should be able to offer support to their peers should they be affected by a traumatic event. It may be useful for organisations to participate in team-building activities, or to receive specific training in how to support others, where to signpost others for help, how to recognise mental health symptoms, and supportive listening. Previous research has suggested that Trauma Risk Management (TRiM)[56] – a peer support trauma response programme developed to encourage a psychological support system within a workplace – has been effective in improving employees' ability to support each other.

As data suggests that learning effective coping skills could be useful in enhancing the resilience of employees, it may be that training which encourages confrontive coping – that is, taking action and facing difficulties as opposed to avoiding them – would be beneficial. This is an area worthy of further research; future studies might consider further exploring the relationship between various coping styles and wellbeing outcomes, or testing the effectiveness of coping skills workshops in the workplace. Ideally workplaces should consider the three factors associated with resilience and try to ensure that their employees benefit from good training and occupational support and are equipped with appropriate coping skills. This may help organisations to become more resilient and reduce the risk of employees suffering adverse psychological consequences post-disaster. The authors finally do acknowledge that this is a qualitative review of the literature and not a formal systematic review and therefore it is possible that pertinent articles may potentially have been missed.

Conclusion

Despite the wealth of literature on the prevalence of mental health symptoms after a disaster, resilience after a traumatic event is not uncommon. Within disaster-exposed workplaces, the prevalence of resilience appears to depend on adequate preparedness, good social support and proactive coping styles. Many of those involved in disaster relief work do in fact experience post-traumatic growth, with a renewed appreciation for life and sense of self-worth. Organisations can enhance resilience in their employees by ensuring they are

trained and prepared for a potential disaster, offering support, and workshops designed to encourage better coping skills.

Competing interests:

N.G. runs a psychological health consultancy which provides amongst other services TRiM training.

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